

The CHEMIST

APRIL, 1943



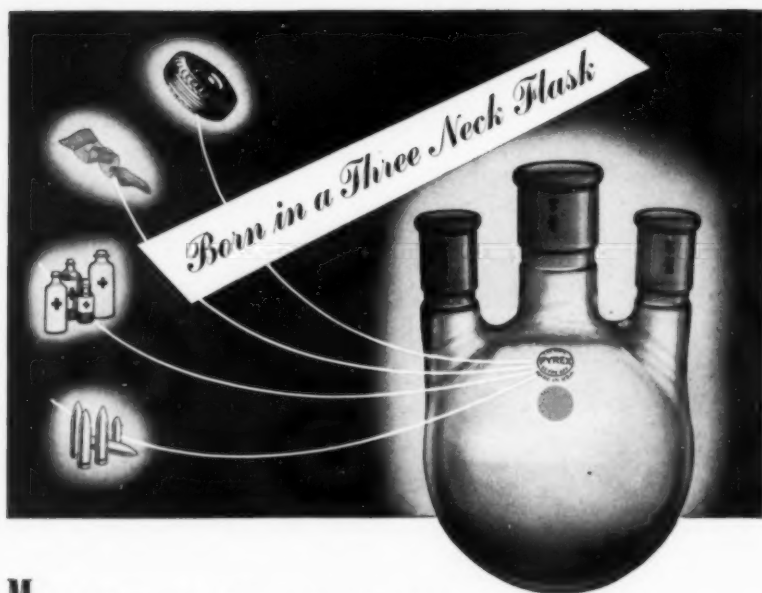
VOL. XX, No. 4

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SCIENTIFIC, TECHNICAL,
INVENTIVE AND INDUSTRIAL
MOBILIZATION FOR WAR

. . .





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The CHEMIST

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THE AMERICAN INSTITUTE OF CHEMISTS

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Editorial

"Inventions dictated by necessity are older than those suggested by pleasure"—Cicero "De Oratore"

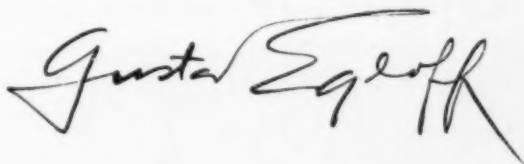
INDUSTRY has reached its greatest development in the United States. This growth has been achieved largely through the protection afforded by the American patent system; the very war effort itself is made possible by this protection given to industry. The first patent issued in this country was in the year 1641, granted by the Massachusetts Bay Colony to one Samuel Winslow on a salt making process. From this early beginning, the principles of our present patent system grew. With the drawing up of the Constitution and its adoption in 1790, the United States became the first country to establish a workable patent system. The Patent Office was established in 1836.

Without patent protection, the inventor could not disclose his invention for fear of having it taken from him by competitors. Mass production would be impossible; and without mass production the vast quantity of war materials needed could not be produced.

The social impact of the establishment of such recognition to the scientific and technical men has made possible the following:

- (1) Wise utilization of patents has stimulated conservation of natural resources.
- (2) It has fostered the development of new products of greater usefulness for service to mankind.
- (3) It has greatly expanded man's own usefulness in society and widened his horizons.
- (4) The American patent system with its store of useful knowledge and technique has provided an industrial weapon by which we will win the war.

Proposed legislation in our Congress would wreck our patent system, hence our leadership in world industry. You must help prevent this.

A large, stylized handwritten signature in black ink, reading "Gustav Egeoff". The signature is written in a cursive style with a large, sweeping initial 'G' and a long, trailing flourish at the end.



nation at war. . . Not all laboratory chemical manufacturers define purity to this degree. So be sure, when you order reagent chemicals from your favorite supplier, that you specify Baker's Analyzed C. P. Chemicals.

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Twenty-First Annual Meeting
of
THE AMERICAN INSTITUTE OF CHEMISTS
at
The Edgewater Beach Hotel, Chicago, Illinois
May 15, 1943
TENTATIVE PROGRAM

- 9:00 a. m. Registration.
10:30 Annual Business Meeting. Election of Officers.
12:00 noon Luncheon Meeting of the National Council.
2:00 p. m. Speakers:
 Dr. Bruce K. Brown, Assistant Deputy Petroleum
 Administrator, "Petroleum in the War".
 Dr. Robert J. Moore, Manager Development Labora-
 tories, Bakelite Corporation, "Synthetic Resin
 Plastics".
 Dr. H. E. Robinson, Research Laboratories of Swift
 and Company, "Meats in the War".
 Dr. David Klein, General Manager, the Wilson Labora-
 tories. "Vitamins in the War".
7:00 p. m. Banquet:

Presentation of the Medal of
THE AMERICAN INSTITUTE OF CHEMISTS
to
WALTER SAVAGE LANDIS

Vice president of American Cyanamid Company

Speakers

- Dr. Maximilian Toch, "Walter Savage Landis, the Man".
Mr. Harry L. Derby, President of American Cyanamid Company,
 "The Achievements of Dr. Landis".
Dr. Gustav Egloff, Presentation of the Medal.
Dr. Walter Savage Landis, Acceptance Address.

UNITED STATES SENATE
Committee on Military Affairs

March 9th, 1943.

Mr. Gustav Egloff
Universal Oil Products Co.
Chicago, Illinois

Dear Mr. Egloff:

This is in reply to your letter of February 24th. I am sorry that a brief absence from Washington followed by a siege of illness prevented my writing sooner. I have introduced a new bill, S. 702, which I am mailing you today. You will note that this is a revision of S. 2721 in which I have attempted to incorporate many of the constructive suggestions made before our Sub-Committee during the hearings on the former bill last year. The principal changes involved are:

1. It emphasizes the voluntary cooperation of engineers and scientists in the mobilization of their abilities during wartime; and therefore with respect to manpower mobilization, its principal change over present methods is that occupational deferment and placement of scientists and engineers are transferred from local boards to special boards of experts. This proposal was unanimously endorsed by all witnesses at our hearings.
2. The proposed Office is to continue during peacetime for purposes which are clearly stated in the bill in order to assure the fullest use of scientific and technical knowledge and personnel in the national interest during the reconstruction period after the war.
3. The bill proposes to prevent any discoveries or patents, which are financed by the Federal government, from becoming the basis of private monopolies. Private persons who have made partial contributions to such discoveries will be fully compensated. This feature of the bill is intended to correct the situation which arose after the last war when many of the discoveries financed by the United States came into possession of monopolies. In fact, some of them were turned over to unfriendly countries. The same section of the bill provides for reward to inventors for discoveries which are in the

national interest even though the commercial value of the inventions may be small or undetermined.

It is my hope that the new language will go far to alleviate the apprehensions you earlier entertained about S. 2721. Furthermore, it would be a great pleasure for me to see you any time you are in Washington to discuss this further.

Very sincerely yours,
Harley M. Kilgore

NOTE: S. 702 was printed in full in the March 1943 issue of *THE CHEMIST*.

Scientific, Technical, Inventive and Industrial Mobilization for War

By Dr. Gustav Egloff, F.A.I.C.

**Presented at a Meeting of The American
Institute of Chemists, Washington, D. C.
Chapter, held at the Wardman Park Hotel,
on March 13, 1943.**

THE scientific, technological, and production men of the United States are doing the greatest job ever undertaken in the history of mankind—namely, converting this great country from a prosperous, peace-time economy to an all-out war effort. This job, or rather the many jobs, are being done with the closest cooperation between government and industry that this country has ever seen, in spite of the many slips, halts, and errors that occur.

In 1942 we produced 48,000 airplanes as against about 1,000 a year before the war; 45,000 tanks as against none before the war; ships at the rate of two or three a day; high explosives at a rate of over twenty times that of World War I; and tremendous quantities of myriad other products which go to war. These facts speak for themselves.

In this amazing development, we have outstripped Germany not only

in production but also in research, in which the Germans were long thought to lead the world. Before the last war, it was generally considered that a man seeking a sound and comprehensive scientific education had to go to Germany; American universities were thought inadequate. That day is long since past. From time to time, our attention has been directed toward the so-called super-coördination of science, technology, and industry in Germany, as if it were a shining beacon toward which the United States should direct its footsteps. This very coördination in Germany, where science, technology, and industry have been regimented, will prove that nation's undoing.

By enforcing regimentation, Germany has frozen her scientific and technical work. As a result, she will lose the war, because the main-spring of competition between different companies and individuals, which motivates progress in a land of private initiative and private enterprise, is lacking.

The amazing results we have obtained in the short space of two years would have been impossible in any other country. The inventiveness, ingenuity, and resourcefulness of American scientists, technologists, and industrial management have been given free play to develop to their fullest stature. When the emergency arose, outstanding leaders in research and industry were called into governmental service. Despite limited supplies of almost all critical materials, clashing of personalities, and the urgency for tremendous speed, these governmental organizations coördinating the research and development of private industry are now proceeding smoothly with their work. Results are becoming increasingly valuable and apparent.

It would seem to be a great mistake to disrupt the research, development, and production organizations that have been built up with so much trial and error, and disorganization would certainly follow any attempt to regiment our whole national economy under such an arrangement as that provided in the KILGORE BILLS which are now before the Senate. Although the bills have the apparently sound objective of attempting to concentrate scientific and technical effort under a single director, the real effect of their enactment would be disastrous to the

war effort and the peace to come.

It is not too much to say that their passage might well be worth a hundred divisions to our enemies.

The nation has had peace as a basis of its economy for a number of years; consequently the conversion to an all-out war program has shifted the national economy from a 6.7 billion dollar a year expenditures for military purposes to 97 billion. The task of mobilizing and equipping an armed force of 11,000,000 men and furnishing the material for the United Nations has called for full mobilization of the civilian manpower, national economy, and industrial resources.

Several years ago a number of governmental agencies were set up for the handling of the vast organization, production, and distribution of commodities, techniques, and personnel which are necessary under prevailing conditions. Naturally this drastic change-over has not been accomplished without some friction and growing pains. Bottlenecks developed in many places, but when the enormous size of the task and actual results being obtained on the production line are considered, the output of our plants is staggering.

Senate Bill 607 introduced in Congress has as its objective a complete reorganization of our civilian and war effort directed by a single "Office of War Mobilization and for other purposes", under the supervision of one director.

Senate Bill 607 on "Office of War Mobilization" carries an appropriation of \$400,000,000, and covers:

1. "Office of Production and Supply"
2. "Office of Manpower Supply"
3. "Office of Scientific and Technical Mobilization", and
4. "Office of Economic Stabilization"

Each of these offices are to be placed under the direction of an administrator at a salary of \$15,000 per year appointed by the Director of the Office of War Mobilization with the approval of the President. The salary of the Director is fixed at \$20,000 per year. Deputy administrators, wherever necessary, are also to be appointed by the Director. The Director, Administrators, and Deputy Administrators are to

be full time Federal employees of the Office of War Mobilization, and cannot have any other business connections.

The duties of the various offices are outlined as follows:

- I. *"The Office of Production and Supply, the duties of which shall be:*
 1. Maintain a current inventory of materials, facilities, and other productive resources, other than manpower, and shall maintain a record of the present and projected use of potential industrial capacity;
 2. translate the production program developed in accordance with the Director of the Office of War Mobilization, the Secretaries of War and the Navy, the Chief of Staff of the Army, the Chief of Naval Operations and the Administrators of the four constituent offices of the Office of War Mobilization, into a detailed time schedule of end and intermediate military and civilian products by plants;
 3. procure through contracts, or otherwise, the requirements of the Departments of War and Navy, and of the Maritime Commission, and all foreign requirements including lend-lease;
 4. review progress on all outstanding contracts and renegotiate such contracts where necessary so as to conform to the schedule under (2) above;
 5. allocate critical materials and facilities, in accordance with this same schedule;
 6. check on the use of facilities, materials, and other production factors through plant inspection;
 7. determine in collaboration with the Office of Manpower Supply a detailed time schedule of plant-by-plant manpower requirements."

Comments:

The provisions of this part of the Bill, if carried out, would disrupt and disorganize present functioning of organizations already doing, in general, a good job after going through many organization and development difficulties. There are a number of governmental agencies already organized to carry out the provisions of the bill. They are the War Production Board, Bureau of Economic Warfare, Lend-Lease, and other groups. To take over and reorganize these functioning departments in a world at war can only bring about a chaotic condition in

the vital production and distribution. These agencies would probably have to halt operations until a new scale of priorities and all other problems were reconsidered by a new, untried, and inexperienced governmental bureau. To pick one item alone, the review and renegotiation of contracts is a time consuming project and would mean a considerable slowing of the war effort.

II. *"The Office of Manpower Supply shall*

1. maintain a current inventory of manpower resources and a record of the present and projected use of manpower resources;
2. allocate manpower as between combat and other essential needs including production so as to meet the comprehensive program developed;
3. develop to the maximum extent, through proper training and placement of workers, all potential manpower resources needed to meet the program;
4. arrange for the transfer of workers from plant to plant, industry to industry, and area to area in accordance with the needs of war mobilization."

Comments:

These functions are already reasonably well administered, and a number of improvements are under way through the War Manpower Commission in full collaboration with the Army, Navy, War Production Board, War Labor Board, the Department of Agriculture, and other governmental agencies. Out of the welter of the studies being made by these governmental divisions, they will solve the manpower distribution for the various needs in the war effort. No new organization such as the one contemplated in the bill could possibly speed the work of allocating the man and woman power of our nation. On the contrary it would slow up the present efforts.

III. *"The Office of Scientific and Technical Mobilization shall effect the full and immediate mobilization of scientific knowledge, techniques, and personnel, for the prosecution of war and for making adjustments necessitated by war conditions."*

Comments:

Practically all governmental, industrial, university, and college laboratories with their personnel are engaged in scientific and technological

research for the war effort under extremely able and established leadership and organization. They are functioning in their respective fields with a coördinated effort to solve the problems before them. To mobilize this group as contemplated in the bill would definitely destroy the heart of the war effort by regimentation of the scientific and technical personnel. This division, as taken up, is the subject of Senate bill 702 which is discussed later.

- IV. "*The Office of Economic Stabilization* shall effect the adjustments of economic structure and conditions of business or employment needed to effectuate the purposes of this Act. The Office of Economic Stabilization shall have jurisdiction over Federal regulation of civilian purchasing power, prices, rents, wages, salaries, profits, rationing, subsidies, loans, and all other matters relating to the adjustment of the economy to the needs of full war mobilization and to the conditions created by war."

Comments:

The Office of Economic Stabilization, as proposed in Senate Bill 607, apparently will have the power to regulate our entire civilian and industrial life, superseding all other branches of the government as to civilian purchasing power, prices on all goods, rents, wages, salaries, profits, rationing, subsidies, and loans; and it takes in all other matters relating to our economy under full war mobilization.

The proponents of this bill seem to ignore the fact that the already existing organizations of government are carrying out its provisions. To take these groups and place them under one director whose experience must necessarily be limited in handling all the ramifications would mean disorganization and disagreement at a time when the present agencies are beginning to get results.

In summarizing Senate Bill 607 the following conclusions may be drawn:

1. New organizations take considerable time to begin a proper functioning, and new men in new jobs for which they have a limited, if any, background cannot immediately improve the war effort.

2. New official red tape would surely develop in taking over the bureaus and personnel that are now functioning.
3. The necessity of securing the approval of the single Director for the prosecution of many tasks delegates too many duties and too much power to one man—who cannot possibly have that much knowledge, experience, and judgment.
4. The disruption of present existing machinery for administering the war program while reorganization took place would be worth far more to the enemy than to us.

In addition to Senate Bill 607 which is general enough to take in the entire economy of the country, Senate Bill 702 introduced on February 11 and referred to the Committee on Military Affairs provides for the placement of all Scientific and Technical problems, personnel, and function under the direction of a new governmental bureau. The provisions of the bill are given as follows:

To establish "*OFFICE OF SCIENTIFIC AND TECHNICAL
MOBILIZATION, AND FOR OTHER PURPOSES.*"

General Purpose:

To appraise the current use of scientific and technical knowledge, facilities, and personnel, and to develop comprehensive material programs for the maximum use of science and technology in the national interest in periods of peace and war.

To mobilize, for the prosecution of war all scientific and technical facilities and personnel.

Comment:

The above apparently is intended to establish the Office as a permanent one for both war and peace.

SEC. 2. DEFINITIONS

(a) "Scientific and technical facilities" shall include real property and personal property, tangible and intangible, used or intended to be used for scientific or technical purposes, programs, research, projects, and developments and shall include further all methods, processes, procedure, techniques, designs, specifications, patents, inventions, and scientific or technical information or knowledge of every description

used or intended to be used for scientific or technical purposes in research and development or in the production or supply of war or civilian goods or services.

(b) "Scientific and technical personnel" shall include all persons, excepting physicians and dentists, who have completed any course of study in any college or university in any branch of science or its practical application or who have had not less than an aggregate of six months' training or employment in any scientific or technical vocation.

SEC. 3.

1. The Administrator's salary is fixed at \$12,000 per year.

Assistants to be under Civil Service unless waived by administrator.

SEC. 4.

POWERS OF OFFICE

(a) "To take and keep a census of scientific and technical facilities, requirements, and personnel in the United States and its possessions and to provide archives for all scientific and technical material coming into the possession of the Government or any agency or department thereof.

(b) "To formulate and promote projects and programs for the development and use of scientific and technical facilities and personnel and, when necessary, to initiate and carry out such projects.

(c) "To foster and develop scientific and technical methods, to promote their application in the national welfare, either within the Office or by other auspices, public or private, and to promote and provide training and participation in science and in its application.

(d) "To ascertain and assess scientific and technical developments in relation to, and to study their impact upon, the national welfare, or any particular category thereof.

(e) "To solicit and to receive aid and support from any source for the advancement of scientific and technical methods.

(f) "To coördinate the scientific and technical data, methods, and facilities of, or available to, all agencies and departments of the Federal Government.

(g) "To foster international coöperation in scientific discovery and the application thereof; to acquire information with respect thereto

from other countries and their nationals; to exchange scientific and technical personnel and information with such countries; and to engage in other suitable forms of international collaboration relating to science and technology.

(h) "To make available, upon request, to the President, to the Congress, and to other persons or establishments (upon such conditions as the Administrator shall prescribe), technical guidance and assistance and any record or other data necessary therefor.

(i) "To review specifications, standards, and designs of military and civilian products and services and their methods of production and supply and to recommend suitable simplifications and changes therein.

(j) "To finance by loan, grant, exchange, purchase, or otherwise the operations or functions, or any of them, authorized by this Act, and, for the same purposes, to make or acquire any contract, guaranty, indemnity, stipulation, lease, or other instrument, to acquire, improve, and alter real and personal property, and to enter into any other transaction necessary or appropriate for the performance of its duties or powers.

(k) "To acquire patents and patent rights, and to authorize the use thereof, subject to the provisions of Section 7 of this Act, and to authorize the use or other disposition of any other property belonging to, or controlled by, the Office, upon such terms and conditions and for such compensation as the Administrator shall determine, which compensation shall be payable to the Office.

(l) "To establish a system of merit awards to be granted to any agency, establishment, or person making any outstanding scientific or technical contribution to the national defense or the general welfare.

(m) "To make, amend, and rescind appropriate rules and regulations to carry out the purposes of this Act and all the powers and duties vested in the Office, which rules and regulations shall have the force and effect of law.

(n) "To avail the Office of the information, services, facilities, officers, and employees of any Federal establishment in carrying out the purposes and provisions of this Act.

(o) "To conduct such research and investigation touching upon the use and development of scientific and technical facilities and personnel as the Office may deem necessary and appropriate to carry out the purposes of this Act."

SEC. 5. MOBILIZATION OF PERSONNEL

(a) "Sec. 10 of Selective Service Act to be amended to give Administrator power, when he deems necessary, to obtain occupational deferments for technical men.

(b) "During the existence of a state of war and for six months thereafter, the Administrator is authorized to prescribe and promulgate appropriate rules, regulations, procedures and methods, subject to direction by the Chairman of the War Manpower Commission, for the training, classification, and employment of all scientific and technical personnel by any person, agency, or establishment, public or private.

Comment:

This paragraph apparently grants the Administrator the power to draft any technical man for service at any place he may designate.

SEC. 6. MOBILIZATION OF FACILITIES

(a) "During war, if Administrator decides the need is urgent, he is authorized to requisition the use of any scientific or technical facility, any license, easement, privilege or other right therein, if such facility cannot be otherwise obtained on fair and reasonable terms. Administrator's power does not extend to any patent itself but is 'confined to licenses or any other right therein respecting user, together with the right to grant sub-licenses.'

During war, Administrator may conduct investigations of technical facilities for war or civilian supply in order to evaluate efficiency of such production.

Priorities for technical research and development will be cleared through the Administrator."

SEC. 7. PRODUCTION OF THE PUBLIC INTEREST IN DISCOVERIES AND DEVELOPMENTS FINANCED BY THE UNITED STATES

(a) "Any provision of law to the contrary notwithstanding, the Office is hereby vested with the exclusive right to use, and with the

exclusive right to license others to use, (1) any invention, discovery, patent, or patent right which has heretofore resulted, or shall hereafter result, from research or invention for the carrying on of which the United States or any department, agency, or establishment thereof either has heretofore contributed at any time since the declaration of national emergency on May 27, 1941, or shall hereafter contribute, any money, credit, physical facilities, or personnel; and (2) any invention, discovery, patent, or patent right which is at the time of the enactment of this Act, or shall hereafter become, to any extent the property of the United States or of any department, agency, or establishment thereof.

(d) "Any owner or assignee of, or any person having an interest in, any invention, discovery, patent, or patent right which has been vested in the Office by virtue of the provisions of subsection (a) of this section shall be paid fair and just compensation for any deprivation of property right resulting from such vesting, to be determined in the same manner as provided in Public Law Numbered 274, Seventy-seventh Congress, as amended, except that the Administrator, subject to review by the President, shall make all determinations in the first instance respecting fair and just compensation: *Provided*, That the Office is also authorized to make suitable compensation, as determined by the Administrator with the approval of the Board, to individual inventors or discoverers or to individuals contributing to inventions or discoveries including employees of the Federal Government, as a reward for their inventions or discoveries or for their contributions thereto when such inventions or discoveries are deemed by the Administrator to be in the national interest and when they are vested in the Office by the provisions of subsection (a) above."

Comment:

Paragraph (a) above, apparently grants the Office the power for the exclusive use and right to license under any patent covering apparatus or process with which the Government has been associated since May 27, 1941. It would appear that if the Government has contributed, *even to the smallest extent*, any one of the following items: "any money, credit, physical facilities or personnel," then such contribution gives the

Government the exclusive right to use and right to license others to use said apparatus or process.

Paragraph (d) of this Section appears to provide that the Administrator may decide what will be fair compensation to the owner of a patent covering apparatus or process which may come under government control. Payment of this compensation to individual inventors, however, appears to be contingent upon authority being granted the Office to compensate the individual inventors who are the patentees of patents vested in the Office.

SEC. 8.

\$200,000,000 is to be appropriated upon the passage of the bill and other sums as necessary.

Administrator may organize corporations to carry out provisions of this act and make loans to these corporations or purchase the capital stock.

Senate Bill 702 seems to have been written with no knowledge of existing governmental bureaus which have mobilized and are still mobilizing scientific and technical manpower and the laboratories and equipment in the United States.

At the present time there are six agencies that constitute the scientific high command in the national government. Through their direction practically all of the universities and colleges are working on war problems. Industry shows that about ninety-five per cent of their scientific and technical personnel and equipment are directly engaged in researches having to do with the war, both of their own and those suggested by the N.D.R.C. Like the mobilization of the army, navy, air forces, the scientific and technological mobilization has not been perfect. Yet the achievements of science and technology have been great. The National Defense Research Committee, the Office of Scientific Research and Development of the War Production Board, and other governmental agencies all tie in closely with the army and navy. All the scientific and technical brain power are working intensively on problems connected with total war.

All scientists, technologists, engineers, and all facilities available in the form of laboratory equipment, pilot plant, semi-commercial units

are to be commandeered. The past results, present problems, and the future problems together with the direction of future developments, are already in the service of the government. Disruption of the fine organizations and highly sensitized organizational plans that are already functioning very well under the able leadership of our best brains having at their command the combined technical knowledge of the nation would occur with the passage of Senate Bill 702. These research groups so finely organized to bring the magnificent inventions to fruition may seem a far cry from the production flowing from an assembly line, but they are just as highly necessary.

Should this bill pass, there would be a totalitarianism unrivalled by our foes. In a democratic state which has been made as magnificent as it is, based upon the free play of initiative, inventiveness, and competition, the passage of this bill would obliterate all the initiative that is present in our way of life. This bill would give the power to break contracts such as those of the National Defense Research Committee or the Office of Scientific Research and Development. This bill would provide for taking over ownership of any inventions which may be involved, in both new contracts and all those that are already in force. All that the bill provides is that it would be necessary only to "contribute", to the project, for one could argue from the bill that if the government just made a loan or placed a single man on the job that it would be a contribution and hence it would have the right to seize all inventions involved. The confiscatory powers may also go to taking over of all patents that may be involved in order to facilitate the transition from the war effort to peacetime enterprise. This bill goes over into the peace period, with no provisions for the cessation of the activities as an "Office of Scientific and Technical Mobilization, and For Other Purposes." This may well mean that not only during the present war but in the peace to come all researches, facilities and developments would be in the hands of the government, who would supply anyone with full information through this office. The inventions which are turning the tide of war today would have been impossible without the patent system, the heart of which is aimed at in Senate Bill 702. The patent system in this country has endured over one hundred and

fifty years and has promoted the greatest scientific, technical, and commercial development of any nation in history. Without the amazing industrial processes and developments that have been fostered by our patent system, it is doubtful if the United Nations could win this war.

Most of these processes are not "war babies". Some of them have been operated successfully to make peacetime products. Others on which research had long been progressing were rapidly brought to commercial status under the spur of war. One receives the impression from published statements that our patent system is an unmitigated evil, when in reality it has made the United States the leading industrial figure in the world. An amazing production together with a transportation capacity by land, sea, and air is supplying the United Nations with materials of every character in ever-increasing quantities.

Without the protection offered by the patent system, few new developments could be expected, for initiative and inventiveness would have no incentive. Many large and small companies maintain research staffs and continually carry on investigations for the improvement of processes and the discovery of new products. A general belief is that only the large corporations own or control the most patents, but this is far from the truth. According to Patent Commissioner Coe, who stated during the Hearings before the Temporary National Economics Committee that eighty-three per cent of the patents issued went to small companies and individuals, and seventeen per cent to the large corporations. The following table covers the detailed data:

<i>Patents Issued 1938¹</i>	<i>Average Per Cent</i>
Large corporations	17.2
Small corporations	34.5
Foreign corporations	5.4
Individuals	42.9

One of the most progressive industries in the world is the oil industry, of which I can speak with some authority; it has reached its greatest development in the United States. Its tremendous rôle in the present war depends squarely upon the American Patent System.

1. T.N.E.C. Verbatim Record of Proceedings Vol. 1, p. 416-417. Dec. 1, 1938 to Jan. 20, 1939.

Owing to the very complex physical and chemical structure of oil itself, inventions have had to be made in order to utilize the oil to best advantage, since nature did not do a good job in producing the hydrocarbons to operate our machines of war. The gasolines, as found in petroleum, could not operate our airplanes, tanks, etc., due to their unsuitable chemical structure. Hence, many inventions were made to change nature's petroleum into aviation gasoline that make it possible for our airplanes to be the master machines they are.

It must be remembered that the American Oil industry began with the Drake discovery well in 1859, drilled to a depth of sixty-nine feet. An industry having an investment of over \$15,000,000,000 has resulted from this modest beginning.

Invention in the oil industry begins with the search for oil and has greatly reduced the uncertainty of the search over the years. Geo-physical and chemical methods have been devised to locate oil. Methods for drilling oil wells in any direction and to any level desired have been developed so that wells can be drilled at varying levels from a single derrick floor. Some oil fields have as many as thirteen different producing oil horizons. Inventive genius has worked overtime to make it possible to drill wells to the depth of three miles with but two degrees off vertical. Drilling machinery has called for highly specialized types of alloys developed through years of research which permit grinding through all kinds of earth structures at high speeds without superheating the tools.

Special mud mixtures have been developed to control oil well pressures, and perfection of such colloidal materials has required application of the highest degree of scientific knowledge. New quick drying cements for the impregnation and sealing of water layers and "heaving shales" present in the earth's crust have been developed.

Every phase of the industry has presented types of problems requiring much inventive skill. Out of a total of 2,200,000,000 barrels of crude oil production in the world for 1942, it is estimated that about 600,000,000 barrels were oil-water emulsions of various characteristics. Many of the emulsions are extremely difficult to break, and no one method has been found satisfactory for all oils. Consequently, physical, chemical, electrical, and mechanical methods have all been used and

adapted to the type of crudes being processed. All these emulsified oils have to be pre-treated before they can be refined to marketable products by one or more processes.

Tank storage for crude oil and gases at wells, refineries and bulk stations, has also called for constant invention and development. Some of the tanks hold as much as 3,000,000 barrels of crude oil. Spherical and spheroid tanks for the storage of liquefied hydrocarbon gases and aviation gasoline have been invented to withstand the pressures necessary to prevent losses. Spheroid tanks have been built having capacities of 120,000 barrels. A tank of this size has a diameter of 155 feet. The largest spherical tank in use at the present time has a diameter of 60 feet and capacity of 20,000 barrels under a pressure of 60 pounds per square inch, and is used to store butanes, butylenes, and butadiene, raw materials for aviation gasoline and synthetic rubber.

Pipelines have constituted a method of transportation unique to the oil industry, and developed exclusively by it. Present developments in pipelines call for the greatest inventive faculty and are more extensive than ever before. This is due to the necessity of transporting gasoline, fuel oil, and crude oil, the latter at the rate of 300,000 barrels per day, from its source in Texas to Eastern areas. The transportation of oil by tanker-ships to the East in the United States has been seriously curtailed by submarine warfare. To overcome this situation the largest pipeline in the world is being rushed to completion to guarantee an uninterrupted oil supply to the Eastern coast and to insure an oil supply for the fighting forces in the Eastern Hemisphere. The oil pipelines built in the United States have a mileage of over 130,000. The largest pipeline in the world will be finished about June 1943, extending from Longview, Texas, to New York City via Philadelphia. This pipeline will be twenty-four inches in diameter and over 1,500 miles long, with oil pumps of a size never built before. The completion of this single project alone would have been impossible without the inventions which were created specifically for speeding the laying of this giant pipeline through valleys, deserts, mountains, and rivers.

Probably one of the most amazing branches of all industry is the refining section of the petroleum industry. The most striking invention in this field has been the commercial thermal cracking of oil, from which

many other processes and inventions have been developed. The high-temperature high-pressure cracking of petroleum and its fractions which contain no gasoline as such, and the cracking of nature's gasoline itself have called forth great inventive genius.

Since its commercialization the thermal cracking of oil has conserved about 18,000,000,000 barrels of crude petroleum, which approximates our present oil reserves. If it had not been for the research, development, and inventions, we would have been compelled to produce 18,000,000,000 more barrels of crude oil than were actually produced, and straight-run gasoline has a quality substantially poorer than cracked gasoline. Over \$500,000,000 was spent in thermal cracking, research, development, and commercial installation which failed before it was possible to commercially convert heavy oils into gasoline.

Nature's gasolines derived from the distillation of crude oil have an average octane rating of about 52, while in contrast, the cracked product has a rating of 70. In fuel efficiency alone this means that the cracked gasolines have a twenty-five per cent greater efficiency than nature's product, when used in motors designed to utilize the cracked product. The improved quality of the cracked gasoline is also a crude oil conservation factor of great importance, i.e., in the year 1942 over 300,000,000 barrels of crude oil were conserved by the efficiency of cracked gasoline.

A number of years ago it was recognized that thermal cracking had a ceiling as to yield and quality of product. Since that time much research has gone into the development of a catalytic cracking process. Catalytic cracking is a far more difficult field for invention than thermal. Catalytic cracking yields over eighty per cent gasoline, having an octane rating of 80, from gas oils and heavier oils. Catalytic cracking has been in commercial use but a few years and will effect an even greater conservation of crude oil in the future than the thermal cracking process has in past years.

In the refining of petroleum based upon distillation and cracking of oil to produce motor fuels, hydrocarbon gases are by-products of these operations. For years these gases were used as fuel under boilers and stills. However, a few years ago catalytic polymerization was invented,

which produced superior gasoline of about 80 octane rating from these gases. This type of gasoline when added to lower grade gasolines increases their octane ratings so that they burn with relatively high efficiency in motors. The catalytic polymerization process for cracked gases when operated under selective conditions yields iso-octenes. Upon hydrogenation a gasoline of over 95 octane is produced, that is used in 100 octane aviation gasoline.

Another exceedingly important process for aviation gasoline is that called alkylation, which results from the reaction of isobutane and olefins. Two catalytic alkylation processes play a dominant rôle in adding to our 100 octane gasoline supplies. There is an inadequate supply of isobutane, hence inventive genius had to develop an isomerization process to convert normal butane to isobutane. This process is fundamental in the production of sufficient isobutane for the quantity of alkylate required. Another reaction of fundamental importance in winning the war is dehydrogenation of butanes for the production of aviation gasoline and butadiene, the latter an important raw material in the production of synthetic rubber.

Another great invention of extremest importance in the war effort is the conversion of gasoline to toluene for production of the high explosive, TNT.

Toluene is a by-product of coal carbonization, which is primarily carried out for the purpose of producing metallurgical coke for steel plants. In World War I the maximum toluene production was at the rate of 15,000,000 gallons a year, and practically all of it came from coal carbonization plants. The toluene production in World War II from coal carbonization units is at the rate of over 25,000,000 gallons a year. According to published reports, the demand for toluene is from 250,000,000 to 300,000,000 gallons a year. The difference between the volume of toluene from coal and the total demand will come from petroleum, i.e., ten to twelve times as much from petroleum. In comparing the two wars, the increased demand for toluene is from sixteen to twenty times. On a TNT basis, World War I called for 150,000,000 pounds, whereas the present war calls for 3,000,000,000 pounds of TNT a year.

If it were not for the inventions developed by the oil industry for

toluene making, there would be a tremendous shortage in TNT production. The amount of coal that would be required to produce 250,000,000 to 300,000,000 gallons of toluene would be about 300,000,000 tons. Carbonization of coal in coke ovens produces less than one gallon of toluene per ton of coal, and the coke and gas would be without demand or use.

Conclusions

What has our patent system done for the oil industry using it as one illustration only?

- (1) It has been a tremendously stimulating force for the conservation of crude oil.
- (2) It has developed new fuels of far greater power output for use in motor cars and airplanes.
- (3) Our whole civil and industrial life depends on the thousands of products which stem from the inventions made in the oil industry.
- (4) Toluene from oil is a major contribution to the war effort.
- (5) The synthetic rubber program is based largely on processes patented by the American oil industry.
- (6) It has given employment to over 5,000,000 people who have been required to develop through research and operation the numerous projects brought to successful commercialization.
- (7) The oil industry based upon processes and inventions which are highly competitive. As inventions are made and patents appear, they stimulate other scientists and technologists in industry to bring forth new or competing processes, and new and better products.
- (8) The patent system is encouraging increasing continuance of research and investigation of all kinds, which results in better products for everybody.
- (9) There can be no doubt that if the patent system is drastically changed or abolished, our world industrial leadership will fall.

The scientific, technical, inventive and industrial mobilization for war in the United States at the present time is doing a miraculous job in every direction toward winning the war. True, much time has been lost in the struggle to get organized with aims focussed on requirements

due to change-over from a peacetime economy to one of war; yet, despite all this, a world leadership has been created in inventiveness and production never before attained.

The passage of such senate bills as are proposed would be devastating in their effect upon our war effort. It would be a fundamental error to disrupt research, development, and production organizations that have been built up through so many years. To regiment our whole national economy in such an arrangement as that provided in the Kilgore Bills now before the Senate would be chaotic in its results. Do not be lulled into a sense of security by believing that these or similar bills cannot become law. This same sense of security was felt in the case of the Prohibition bill in World War I. It passed.

We are fighting the Axis powers and should not fall into the trap of operating our own economic system of free enterprise on the basis of totalitarianism. Our form of government may be slow in getting things done, may seem somewhat cumbersome and wrong at times, but its product is a democracy which will carry civilization to even far greater heights.



"Our older habits no longer fit the new conditions of life, and we have not yet learned how best to use the new possibilities placed at our disposal. Nor as long as such rapid changes in our social life continue can we hope to make a completely satisfactory adaptation of our mode of life. For as one aspect of the problem becomes solved, changes will lead to maladjustment somewhere else. It would for this reason be futile to hope to attain within the next generation an art of living in a technological world that can compare in refinement with the classic culture initiated by the Greeks and developed through centuries of such tradition as that carried on by European and English society. In course of time, though it may require centuries, we may expect the development of science to approach a new plateau of knowledge and invention. Then we may hope again to refine our mode of living to fit precisely the conditions of our greater world."

—ARTHUR H. COMPTON.



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MARSTON L. HAMLIN	A. W. BURWELL	GILBERT E. SEIL	ALBIN H. WARTH

April Meeting

A MEETING of the National Council of THE AMERICAN INSTITUTE OF CHEMISTS was held on Friday, April 16, 1943, at the Building Trades Employers' Association, 26th Floor, No. 2 Park Avenue, New York, N. Y. at 4 p.m.

President Gustav Egloff presided.

The following officers and councilors were present:

Messrs: E. R. Allen, G. Egloff, M. L. Hamlin, H. S. Neiman, F. D. Snell, M. Toch and E. H. Northey.

The minutes of the previous meeting were approved.

The Secretary announced that the following nominations had been made by vote of the membership: For

councilors: Donald B. Keyes, Raymond E. Kirk, Frank G. Breyer, Charles N. Frey, R. H. Kienle, and Arthur M. Buswell. These names will appear on the election ballot now being sent out.

Dr. Egloff read the program for the Annual Meeting to be held May 15, 1943, at the Edgewater Beach Hotel, Chicago. Plans for the meeting were discussed.

The Treasurer's report showing a total of cash and bonds as of March 31, 1943, of \$4332.67, was read and accepted.

The Secretary reported that we now have 1773 members.

The Secretary read a letter from

Miss Margaret Haight, and after discussion, the letter was referred to the Committee on Economic Welfare.

The Secretary read a letter from Rane Curl, a fourteen year old boy, who asked questions about the problems in his chemistry laboratory. Several suggestions were made for his information.

Upon motion made and seconded, the following new members were elected:

FELLOWS

Carodemos, Peter P.

(1943), *Associate Professor of Chemistry*, Clemson College, Clemson, South Carolina.

Dorris, Thomas B.

(1943), *Research Chemist*, Franklin Research Company, 5134 Lancaster Avenue, Philadelphia, Penna.

Drimer, David

(1943), *Chemist*, Clover Leaf Paint and Varnish Corp., 43-43 Vernon Boulevard, Long Island City, N. Y.

Erickson, Harry John

(1943), *Chief Chemist*, Assistant Superintendent, Aurora Gasoline Company, 12800 Northampton Street, Detroit, Michigan.

Geiser, William B.

(1943), *Chief Chemist*, Lines West, New York Central System, 541 East 152nd Street, Cleveland, Ohio.

Lee, George F., Sr.

(1943), *Analytical and Consulting Chemist*, 215 Franklin Street, Johnstown, Penna.

Levine, Morris

(1943), *Chemist, Research and Development*, Danciger Oil and Refining Company, Box 1889, Tulsa, Okla.

Moore, Norman Hall

(1943), *Chief Chemist*, Indian Refining Company, No. 1 Havoline Street, Lawrenceville, Illinois.

Peabody, William A.

(1943), *Research Director*, Valentine's Meat-Juice Company, 1600 Chamberlayne, Richmond, Virginia.

ASSOCIATE

Gleave, Rex O.

(A.1943), *Chief Chemist*, Inland Empire Refineries, Inc., Box 6188 Hill-yard Station, Spokane, Wash.

JUNIOR

Holler, Albert C.

(J.1943), *Chemist*, U. S. Metal Products Company, P. O. Box 1067, Erie, Pennsylvania.

Upon motion made and seconded, Richard A. Butcosk was raised from Junior to Associate.

Dr. Toch reported for the Committee on Licensure.

Dr. Egloff made suggestions for improving THE CHEMIST and the routine work of the Institute.

The Secretary was requested to write to the Niagara Chapter and tell them Dr. Egloff will be available to speak before that Chapter sometime in May, preferably after May fifteenth.

Dr. Egloff reported his discussion with Mr. Hutchins about publicity.

There being no further business, adjournment was taken.

Applications for Membership

For Fellows

Ashman, George C., Jr.

Research Chemist, The Miner Laboratories, 9 S. Clinton Street, Chicago, Illinois.

Keating, Kenneth J.

Factory Manager and Technical Director, General Paint Corporation, 3000 Sand Springs Road, Tulsa, Oklahoma.

Krewson, Charles F.

Associate Chemist, Bureau of Agricultural and Industrial Chemistry, U. S. D. A., Chestnut Hill Station, Philadelphia, Penna.

Kumins, Charles A.

Research Chemist, Interchemical Corporation, 432 W. 45th Street, New York, N. Y.

Raimond, William A.

Research Chemist, Calco Chemical Division, American Cyanamid Company, Bound Brook, New Jersey.

Steinberg, Ralph H.

Chemist, Carnegie-Illinois Steel Corporation, 3426 E. 89th Street, Chicago, Illinois.

Treadway, Robert H.

Associate Chemical Technologist, Eastern Regional Research Laboratory, U. S. D. A., Chestnut Hill Station, Philadelphia, Penna.

Williams, Gordon M.

Research Chemist, New Wrinkle, Inc., 314 West First Street, Dayton, Ohio.

Yoran, Calvin S.

Chief Chemist, Wishnick-Tumpeer, Inc., 6200 West 51st Street, Chicago, Illinois.

For Associates

Doherty, David G.

Assistant Chemist, Eastern Regional Research Labs., U. S. D. A., Chestnut Hill Station, Philadelphia, Pa.

Fahrenbach, Marvin J.

Research and Development Chemist, Calco Chemical Division, American Cyanamid Company, Bound Brook, New Jersey.

Mellon, Edward F.

Assistant Chemist, Eastern Regional Research Laboratory, U. S. D. A., Chestnut Hill Station, Philadelphia, Pennsylvania.

Seeger, Doris R.

Research Chemist, Calco Chemical Division, American Cyanamid Company, Bound Brook, New Jersey.

Swain, Ansel Parrish

Assistant Chemist, Eastern Regional Research Laboratory, U. S. D. A., Chestnut Hill Station, Philadelphia, Pennsylvania.

For Reinstatement as Fellow

Jarvis, Ernest G.

President and General Manager, Niagara Falls Smelting and Refining Corporation, 2208 Elmwood Avenue, Buffalo, New York.

CHAPTERS

Chicago

Chairman, Vanderveer Voorhees

Vice-chairman, Hilton I. Jones

Secretary-treasurer, Charles L. Thomas

Universal Oil Products Company

Riverside, Illinois.

THE March 26, 1943 meeting of the Chicago Chapter of THE AMERICAN INSTITUTE OF CHEMISTS was called to order by Dr. Voorhees at 8:00 p.m. The attendance was approximately 200, of whom 155 had attended the dinner. The minutes of the previous meeting were read (by H. S. Bloch in the absence of the Secretary) and approved. The Chairman announced that the slate of candidates recommended by the Nominating Committee had been mailed to Chicago Chapter members and called for additional nominations from the floor. Since there were no additional nominations, it was moved and seconded that the nominations be closed and the motion was carried. The Chairman announced that R. B. Harper had been selected to take the place of Otto Eisenschiml as nominee for councilor on the list previously mailed. The Chairman announced that the annual spring meeting of THE AMERICAN INSTITUTE OF CHEMISTS will be held in Chicago on Saturday, May 15. At this meeting the Institute's medal will be awarded to Dr. Landis and there will also be an award of student medals.

Following the business meeting, Dr.

Arthur Guillaudeu introduced the subject and the speakers of the evening. Dr. Guillaudeu spoke on the background of the Kilgore bills and related attempts at unionization of chemists and licensing of engineers and chemists. He briefly explained the Kilgore bills S-2721, S-607 and S-702, the first of which died in the last Congress and all of which deal with mobilization of chemists and other technologists. Dr. Guillaudeu summarized S-607 and S-702 and read essential portions thereof. He further reported on the meeting with Senator Kilgore in Chicago at which the latter pointed out that the bills were trial balloons sent up to elicit criticism and suggestions and were not expected to pass in their present form.

Dr. H. A. Wagner, past president of the American Association of Engineers, spoke on the probable effect of the pending Senate bills on engineers and other technologists and pointed out that Congressman Tolan of California had introduced a bill on March 23, 1943 in the House of Representatives which was very similar to the Kilgore Senate bills. After reviewing the fight of the American

Association of Engineers against S-2721 and S-2871, which were predecessors of S-607 and S-702. Dr. Wagner criticized the indefiniteness of duration of the agencies created by S-607, nominally a war measure, and the permanence of the organizations created by S-702. He believed that the bills would stifle free enterprise and regiment all scientists under political control. He urged chemists, physicists, engineers and other scientists and technologists to form a united legislative front which might serve as a pressure group to protect their interests. He pointed out that although bill S-702 has lofty purposes, it lacks specific directions for carrying them out. Among the defects of the bill were Section 7, which would destroy the patent system and benefits thereof; the composition of the executive and advisory boards created under the bill, which comprised a very small minority of chemists; the bill's definition of scientists and technologists; and the lack of a requirement for scientific training in the administrator. Dr. Wagner summarized the bills as a step toward collectivism and indicated that the American Association of Engineers is strongly opposed to both of them. The next issue of "The Professional Engineer" will contain the Association's analysis of the bills.

Robert C. Brown, Jr., chairman of the Associated Defense Committees, Chicago Technical Societies, indicated that he opposes the bills as they stand, primarily for the reasons summarized by Dr. Wagner, and suggested that other means of overcoming the present shortcomings in scientific mobilization might be taken without resorting to the regimentation of the Kilgore bills. Among the shortcomings

which Mr. Brown pointed out were (1) the secrecy concerning war problems, which prevents application of the mass of technical minds to those problems, (2) the lack of organized stimulation toward thinking on war problems and of widely spread agencies for receiving ideas on them, (3) the lack of "reduction-to-practice" agencies, and (4) the overlapping and lack of coordination of government scientific agencies. He suggested a National Scientific Agency which would embody a number of local agencies associated in turn with already existing local scientific groups for the purpose of (1) receiving ideas, (2) working them up, and (3) adopting and utilizing them. Mr. Brown summarized the bills as the work of a sincere but misguided legislator and warned against their vicious provisions.

Professor Harry McCormack, Director of the Chemical Engineering Division of Illinois Institute of Technology opposed the Kilgore bills because of the dictatorial powers they would give the government and pointed out that they would authorize by legislation agencies some of which are now in existence by executive decree. After distributing to the audience organization charts of the agencies created by the Kilgore bills, Professor McCormack expressed the belief that the National Scientific Technical Committee created in S-702 was too large to function successfully and that the entire organization was woefully deficient in scientifically trained minds. Professor McCormack believed that the passage of the bills would be detrimental to the war effort since government-supervised research is inefficient and unproductive.

Following these speakers there was discussion and comment from the floor, of which the following is a brief summary.

Dr. Otto Eisenschiml: The Kilgore bills would breed greater evils than those they are designed to cure.

Dr. Gustav Egloff: The bills embody extreme financial extravagance and are dangerous as forerunners of regimentation. We should not be lulled into a false sense of security by a belief that the bills will not pass. Their passage would be worth 100 divisions to the enemy.

R. C. Brown, Jr. (in reply to a question): The bills may merely be designed to set up a background for presidential action along similar lines by executive decree.

B. E. Schaar: Three of the four proposed offices of the S-607 bill are

already in existence; the bill merely proposes to place them under a single head. The fourth office (Scientific and Technical Mobilization) is created by S-702. Although S-702 contains many defects and the speaker is against its passage, he believes that all manpower including technical should be mobilized for the duration.

G. Hull: The bills contain no provision for appeals against injustices perpetrated by the administrators. They should contain provisions designed to utilize existing agencies such as the National Roster of Scientific Personnel which should be empowered to transfer manpower.

Dr. Voorhees closed the meeting with an expression of appreciation to all the speakers. The meeting was adjourned at 10:10 pm.

New York

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Vice-chairman, Paul J. Witte

Secretary-treasurer, A. Lloyd Taylor

Oakite Products Company, 22 Thames Street

New York, N. Y.

Council Representative, Marston L. Hamlin

Niagara

Chairman, L. M. Lawton

Vice-Chairman, George W. Fiero

Secretary, Margaret C. Swisher

Department of Chemistry

University of Buffalo

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Council Representative, Gilbert E. Seil

News Reporter to THE CHEMIST, Kenneth A. Shull

Washington

President, L. F. Rader, Jr.

Vice-president, Donald H. Andrews

Treasurer, L. R. Heiss

Secretary, Ernest J. Umberger

207 Albany Avenue, Takoma Park, Maryland

News Reporter to THE CHEMIST, T. H. Tremearne

Council Representative, Albin H. Warth

ON March thirteenth, the Chapter held an informal dinner at Wardman Park Hotel. Dr. Gustav Egloff, our National President, was the guest of honor and the speaker of the evening at the meeting following the dinner. The attendance at the dinner was very good and it increased for the meeting.

Chapter president L. F. Rader, Jr., presided at the meeting and introduced Dr. Egloff, whose address was on the "Scientific, Technological, Inventive and Industrial Mobilization for War." Dr. Egloff's paper is published in full in this issue of THE CHEMIST.

Captain Martin Leatherman came over from Edgewood Arsenal to attend the dinner and meeting. Army life agrees with him and it was a pleasure to have him show his interest in the Chapter.

Dr. Albin H. Warth and J. J. Ballassa came over from Baltimore for the dinner and meeting, despite the war conditions. We were glad to learn from Dr. Warth that our Chapter friends in Baltimore are doing their part in the war work.

A recent order from the office of the Secretary of the Department of

Agriculture has transferred the Industrial Contaminant and Weed Eradication section of the Agricultural Chemical Research Division of the Bureau of Agricultural Chemistry and Engineering to the Bureau of Plant Industry. Mr. S. W. Griffin and T. H. Tremearne, two American Institute of Chemists members, are affected by this transfer.

Another recent order of interest is the change of the Agricultural Chemical Research Division to the Southern

Regional Laboratory at New Orleans. Mr. Charles A. Fort and Mr. George P. Walton are in this division change.

The Naval Stores Division is also to be moved to New Orleans, affecting Chapter secretary Ernest J. Umberger.

In time of war great changes in living and working conditions seem to be necessary, and it is hoped that the changes being made will be for the quick success of our Victory in the war.



Business of the Nation

Under the above title, the following column by Phil S. Hanna appeared in *The Chicago Sun* on March 31, 1943:

"You Don't Know What Control is Until You've Read Sen. Kilgore's Bill"

"Those who may think the proposals of the National Resources Planning Board for a postwar 'partnership' between government and business would be inimical to private enterprise ought to take a look at Senate Bill S-607, introduced by Senator H. M. Kilgore (Dem. W.Va.). Ostensibly an 'Office of War Mobilization' bill and carrying an appropriation of only \$400,000,000, this bill has tucked away in it authority to create the 'Office of Scientific and Technical Mobilization' which would have power to completely stifle new enterprise.

"It is provided that the Office of Scientific and Technical Mobilization shall effect the full and immediate mobilization of 'scientific knowledge,

techniques and personnel' for the prosecution of war and for making adjustments necessitated by war conditions. There would be an administrator at \$15,000 a year for each division, in addition to a director at \$20,000 a year and deputy administrators, etc., etc., all appointments being subject to the approval of the President.

"There is an abundance of evidence that practically all of the industrial, college and governmental laboratories in the country are busily engaged in scientific and technological research for the war. They are operating with unusual effectiveness and particularly with a co-ordination which stands out in invidious contrast with the lack of co-ordination in the special wartime administrative bureaus in Washington. *An Initiative Killer*

"Notwithstanding Senator Kilgore has introduced another bill, S-702, which provides for the placement of

all scientific and technical problems, personnel and functions under the direction of a new governmental bureau. To give an idea of how sweeping is the proposed power under these two bills one needs but to note the definitions in Section 2 of S-702.

"For example, Section 2 (a) 'Scientific and technical facilities' shall include real property and personal property, used or intended to be used for scientific or technical purposes, programs, research and developments and shall include further all methods, processes, procedure, techniques, designs, specifications, patents, inventions, and scientific or technical information or knowledge of every description used or intended to be used for scientific or technical purposes in research and development or in the production or supply of war or civilian goods or services.

"Section 2 (b) provides that 'Scientific and technical personnel' shall include all persons, excepting physicians and dentists, who have completed any course of study in any college or university in any branch of science or its practical application or who have not less than an aggregate of six months' training or employment in any scientific or technical vocation.

Unfair to Researcher.

"Moreover, reader, further in the bill this new authority would have

the exclusive use and right to license any patent covering any apparatus with which the government has been associated since May 27, 1941. If the government has contributed even to the smallest extent in money, facilities or personnel, this bill would give the government the exclusive right to the use of patents and the right to license it to others.

"It's difficult to adequately describe these bills in a small space; but in a word this bill, if enacted, would give the federal government a pre-emptive right on the product of the mind of every inventor and researcher in addition to a call on his services. To me, it's a lot like the things you read and hear about in Germany.

"Even granting that government scientists have done some very excellent work, this bill, in my opinion, would most certainly kill initiative and private urge to enterprise. And more than that with pressure blocs controlling appointments to the proposed new boards it would be simple indeed for a board to ban an invention which might adversely affect the members of one pressure bloc and subsidize or enforce the use of a competing invention which would favor another pressure bloc. This would be adding to the existing situation vastly worse evils than the ones which the legislation seeks to remove."



The University of Pittsburgh announces the appointment of Dr. Alexander Silverman, F.A.I.C., head of the Department of Chemistry, as consultant on glass to the Office of Production Research and Development of the War Production Board. His headquarters will be at the University.

Dr. Milton Harris, director of research for the Textile Foundation, was guest of honor at the March twenty-fifth meeting of the North Carolina Section of the American Chemical Society, held at the Hotel Charlotte, Charlotte, North Carolina. Dr. Harris spoke on research being

done on the properties of various fibers, and illustrated his talk with numerous slides. A surprise blackout interrupted the meeting.



Meeting Dates—1943

- May 10-11—American Institute of Chemical Engineers. Hotel Waldorf-Astoria, New York, N. Y.
- May 11-13—Meeting. The American Institute of Chemical Engineers, Boston, Mass.
- May 12-14—American Oil Chemists' Society. Hotel Roosevelt, New Orleans, Louisiana.
- May 15—Annual Meeting. THE AMERICAN INSTITUTE OF CHEMISTS. Edgewater Beach Hotel, Chicago, Illinois.
- May 17-19—American Association of Cereal Chemists. Hotel Jefferson, St. Louis, Missouri.
- May 21—Meeting of the New York Chapter of THE AMERICAN INSTITUTE OF CHEMISTS. 26th Floor, Number 2 Park Avenue, New York, N. Y. "Ancient Fabrics and Their Application in Modern Design." M. D. C. Crawford, of Fairchild Publications, New York, N. Y.
- May 31-June 1—Canadian Chemical Association. Annual Meeting, Montreal, Canada.
- Sept. 6-10—American Chemical Society. 106th Meeting. Minneapolis, Minnesota.
- Dec. 28-30—American Chemical Society. Organic Chemistry Symposium. Boston, Mass. Tenth National Symposium.

"The Chemist in Three Wars"

The following review of Dr. Otto Eisenschiml's paper "The Chemist in Three Wars," read before the Chicago Chapter of the INSTITUTE (published in the October CHEMIST), appeared in the column entitled "The Lawyer's Bookshelf" of the Chicago Daily Law Bulletin, September 29, 1942:

"... Anyone who has read Dr. Eisenschiml's 'Why Was Lincoln Murdered?' or its sequel, 'In the Shadow of Lincoln's Death' will know that Chicago's historian-chemist is not a man who repeats the obvious. He has something to say—something which has not been said before—or, he keeps silent.

"*The Chemist in Three Wars* is no exception to the rule. He first considers the rôle of the chemist in the Civil War and adds materially to our knowledge. He then reviews the rôle of the chemist in World War I and demonstrates that the generations of the 1940's have failed to learn the lessons of the chemical history of that conflict. He then clearly and convincingly sets forth the part played by chemists in the present war and the part they should, and don't, play. His recommendations on the rubber situation and the means of securing coöperation of professional men are worthy of the most serious consideration by the government of the United States. This method of approaching the problems inherent in coöperation between the government and the members of the chemical profession, would be a valuable approach for the legal profession to emulate."

NEW BOOKS

Natural & Synthetic High Polymers

KURT H. MEYER

1942. 690 pages, 180 ill. \$11.00

For the first time an attempt has been made to give a systematic account of the entire field of natural and synthetic, inorganic and organic high polymers.

Volumetric Analysis, Vol. I

DR. I. KOLTHOFF, DR. V. STENGER

1942. 325 pages, 31 ill. \$4.50

The book retains the general character of the first English edition although some condensation, and shifting in the order of presentation have been necessary to make room for considerable new material.

Organic Chemistry

PROF. PAUL KARRER

1938. 900 pages, ill. \$11.00

The aim is to provide students with a textbook of organic chemistry of medium size, which would give them a survey of the ever-increasing body of facts.

Fundamentals of Immunology

DR. W. C. BOYD

1943. 425 pages, 45 ill. \$5.50

An introduction to immunology for medical students, chemists, biologists, and others interested in an understanding of the basic principles of the science, written from the standpoint of a chemist.

War Gases

DR. M. B. JACOBS

1942. 200 pages, 8 ill. \$3.00

The book presents the subject to that it will be useful to the gas identification officer, war gas chemist, decontamination officer, health officer, air raid warden, to all persons dealing with gas defense.

Chemistry & Physiology of the Vitamins

DR. H. R. ROSENBERG

1942. 694 pages, 25 ill. \$12.00

The first comprehensive treatment in the English language of the chemistry and physiology of all the vitamins.

Advances in Colloid Science

Edited by DR. E. O. KRAEMER, PROF. FLOYD E. BARTELL, DR. S. KISTLER

1942. 446 pages, 161 ill. \$5.50

Ten outstanding colloid chemists report in an authoritative and personal way on the progress in their fields.

Chromatographic Adsorption Analysis

DR. H. R. STRAIN

1942. 232 pages, 37 ill. \$3.75

The book features a description of a unique columnar adsorption method for the detection, isolation, and purification of numerous compounds not preparable by other methods.

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NEW BOOKS
INDUSTRIAL RESEARCH

F. RUSSELL BICHOWSKY

1942

\$2.50

The purpose of this book is to display the social importance of research and to outline those general principles of management and organization which have proven successful in the laboratory. This book, therefore, may be considered as a manual for the research director and for the business executive, real or potential. But it is more than that, as it presents in a concrete form what may be thought of as a philosophy or theory of research in its social aspects.

CELLULOSE CHEMISTRY

MARK PLUNGUIAN, Ph.D.

1943

\$2.25

This book will serve the practising cellulose chemist who wishes to review the latest developments in this field. Interpretations of reactions were made on the basis of the modern conceptions of the micellar structure of cellulose. This book will be welcomed by the chemist keen to orientate himself in an important, interesting and rapidly developing branch of chemistry.

ADHESIVES

FELIX BRAUDE, Ph.D.

1943

\$3.00

This book was written primarily for the practical man who is interested in adhesives either as producer, consumer or salesman. It should also be of value to anyone requiring a concise, bird's-eye view of the subject. No chemical or technical training is required for the full understanding of this volume, as the subject is presented from the practical point of view with a minimum of theoretical discussion.

ULTRA-VIOLET LIGHT

and Its Applications

H. C. DAKE and JACK DE MENT

1942

\$3.25

This book presents the most important of the innumerable practical applications which have been found for ultra-violet light and fluorescence in the industries, sciences, and arts. Only the uses believed to hold the widest practical applications, and possibilities for future development have been included.

THE BLAST FURNACE

Its Raw Materials, Products, By-Products and Their Chemical Analysis

ROY P. HUDSON

1942

\$3.75

This volume will be of interest to practical blast-furnace men, to fuel preparation engineers and technologists, and to metallurgical chemists. It will be used as a reference work, by students of metallurgy and metallurgical analysis.

**CHEMICAL AND TECHNICAL
DICTIONARY**

A. W. MAYER

1942

\$6.00*German-English-French-Russian*

Students in scientific fields and also those interested in languages will find this book an excellent aid in their work. It is also of great value for those who desire to keep up with current chemical developments abroad as recorded in foreign periodicals.

ORGANIC CHEMISTRY SIMPLIFIED

RUDOLPH MACY

1943

\$3.75

This is primarily a text of organic chemistry and gives a simple and a clear outline of this vast field. It will be useful not only to students who want to acquire a basic training in organic chemistry, but also to those who are engaged in work of a chemical nature and would like to study the principles of reactions and nature of compounds they deal with.

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Every one of us uses and depends on supplies of essential materials. The war has brought home to Americans, for the first time, our ignorance and lack of preparation. While newspapers and periodicals told us the facts, dullness of statistics prevented our comprehending their importance.

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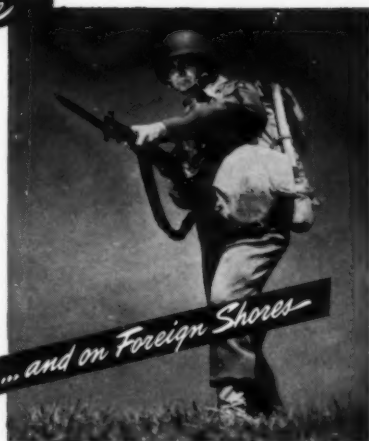
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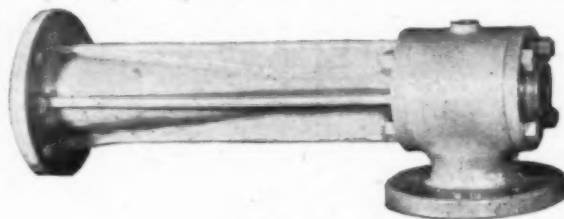
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